

## RESEARCH AND DEVELOPMENT, NEUCHATEL - QUARTERLY REPORT

DIVISION : RESEARCH  
SUBJECT TITLE : PESTICIDES  
PERIOD COVERED : OCTOBER - DECEMBER 1988  
WRITTEN BY : Amati-D. (DAA)  
KEYWORDS : culture, moon, methoprene, tla, maleic-  
hydrazide, mh-30, dithiocarbamate, dtc,  
carboxylic-acid, 2,4-d, 2,4,5-t, dicamba,  
screening

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### OBJECTIVES

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To provide an analytical service for the analysis of pesticides in tobacco and cigarette filler.

To develop analytical methods for new pesticides and to improve existing methods.

### RESULTS

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#### PROJECT CULTURE

##### Pesticide routine analysis

As mentioned previously [1], dimefox losses occurred during the concentration steps of the GPC method for the organophosphorous pesticides. By the application of a Kuderna Danish apparatus these losses can be avoided and a determination of the organophosphorous pesticides together with the pesticides already determined with the GPC method will be possible.

##### Carboxylic acids

A method for the determination of the herbicides 2,4-D, 2,4,5-T and dicamba in filler was established. A description of the method is in preparation. The determination of the 3 herbicides will be included in the quarterly check of PMG products.

##### Pesticide screening

Experiments were performed for a screening procedure for organophosphorous pesticide residues [2]. The detection principle is

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based on an enzymatic reaction which is inhibited by the presence of organophosphorous pesticides. The sensitivity of the reaction is between 1 and 1000 ng per pesticide. Preliminary tests showed that the method works if pure pesticides are applied on the plate. The sensitivity of the method and interference problems with tobacco extracts have to be studied in more detail.

### Methoprene

Five tobacco dust samples from trials with Dianex at FTR production center were analysed for methoprene. Residues found ranged between 2.8 and 27.9 ppm [3,4].

### Offer samples

At the request of Leaf department EEC, 20 offer samples (TU-BU) were analysed for dithiocarbamates (DTC). Nineteen samples had DTC residues below the recommended value of 50 ppm set by the German regulation and one sample had 56.2 ppm [5].

### Maleic hydrazide

Sixteen PMH-TLA samples and 6 FTR-TLA samples were analysed for MH-30 [6,7,8]. Five PMH-TLA samples and 1 FTR-TLA sample contained MH-30 residues slightly above the 80 ppm recommended level (Table 1).

Belgian, Swiss, Italian and English cigarette brands were bought on the respective markets in 1988 and were analysed for MH-30. Results are listed in Tables 2,3,4 and 5 and shown in Figs. 1,2,3 and 4 respectively.

## PROJECT MOON

### PMG-TLA samples and PMG-brands

As an analytical service for PMG, 112 TLA samples and 8 PMG brands were analysed for pesticide residues [9,10,11]. In 29 TLA samples, MH-30 residues exceeded the maximum recommended level of 80 ppm.

In the PMG brands no pesticide residues above the German tolerances were found. A decrease of DTC residues was observed for all brands except for MYO.

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MH-30 survey of DB-brands, December 88

In comparison to the last survey of June 88, an increase of the MH-30 residues was observed for HB, Camel and West (Fig. 5).

REFERENCES

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- [3] Memo from Amati-D. to Freymond-J.M., November 25, 1988.
- [4] Memo from Amati-D. to Freymond-J.M., December 8, 1988.
- [5] Memo from Amati-D. to Speck-M., December 21, 1988.
- [6] Memo from Amati-D. to Babey-J., November 28, 1988.
- [7] Memo from Amati-D. to Babey-J., November 28, 1988.
- [8] Memo from Amati-D. to Babey-J., December 21, 1988.
- [9] Memo from Speck-M. to Probst-K., October 4, 1988.
- [10] Memo from Amati-D. to Probst-K., December 5, 1988.
- [11] Memo from Amati-D. to Probst-K., December 21, 1988.

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Table 1 : MH-30 RESIDUES IN PMH-TLA AND FTR-TLA SAMPLES EXCEEDING THE 80 ppm RECOMMENDED VALUE

Lot.	CY	Origin	MH-30 (ppm)
3095	86	US	92.0
6074	87	US	240.7
6075	87	US	208.9
6076	87	US	244.1
6077	87	US	218.0
6078	87	US	159.5

Table 2 : MH-30 IN BELGIAN BRANDS, 1988

Brand	Company	MH-30 (ppm)
Marlboro	PM	38.3
Marlboro Lights	PM	33.5
L+M	PM	28.4
Belga Filtre	Vander Elst/Rothmans	22.7
Bastos Filtre	Cinta/REE	39.7
Gauloises Filtre	Cinta/REE	n.d.
St. Michel, NF	Gosset	n.d.
Richmond	Jubile	18.2
Boule d'Or	Odon Warland/BAT	12.8
Barclay	Odon Warland/BAT	63.9
Johnson	Jubile/Rothmans	n.d.
P. Stuyvesant	Jubile/Rothmans	12.5
Camel	Gosset/RJR	33.2
Kent	Landewijck	6.8

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Table 3 : MH-30 IN SWISS BRANDS, 1988

Brand	Company	MH-30 (ppm)
Marlboro	PM	44.8
Muratti Ambassador	PM	23.0
Brunette DF	PM	24.7
Camel Mild	RJR	41.4
Barclay	BAT	29.2
Maryloug	BAT	23.0
Maryloug Ex.	BAT	12.2
Select	BUR	20.2
Select Mild	BUR	27.2
Parisienne	BUR	22.7
Gauloises F	RIN	n.d.

Table 4 : MH-30 IN ITALIAN BRANDS, 1988

Brand	Company	MH-30 (ppm)
Marlboro	PM	34.9
Merit	PM	41.1
Diana	PM	33.2
Multifilter	PM	22.7
Muratti Ambassador	PM	28.1
MS	MTI	20.2
MS Mild	MTI	25.8
N 80	MTI	n.d.
Futura	MTI	11.4
MS Blu	MTI	28.1
Kim	BAT	20.7
Camel	RJR	20.4
Milde Sorte	AU	15.9
R6 International	REE	19.0

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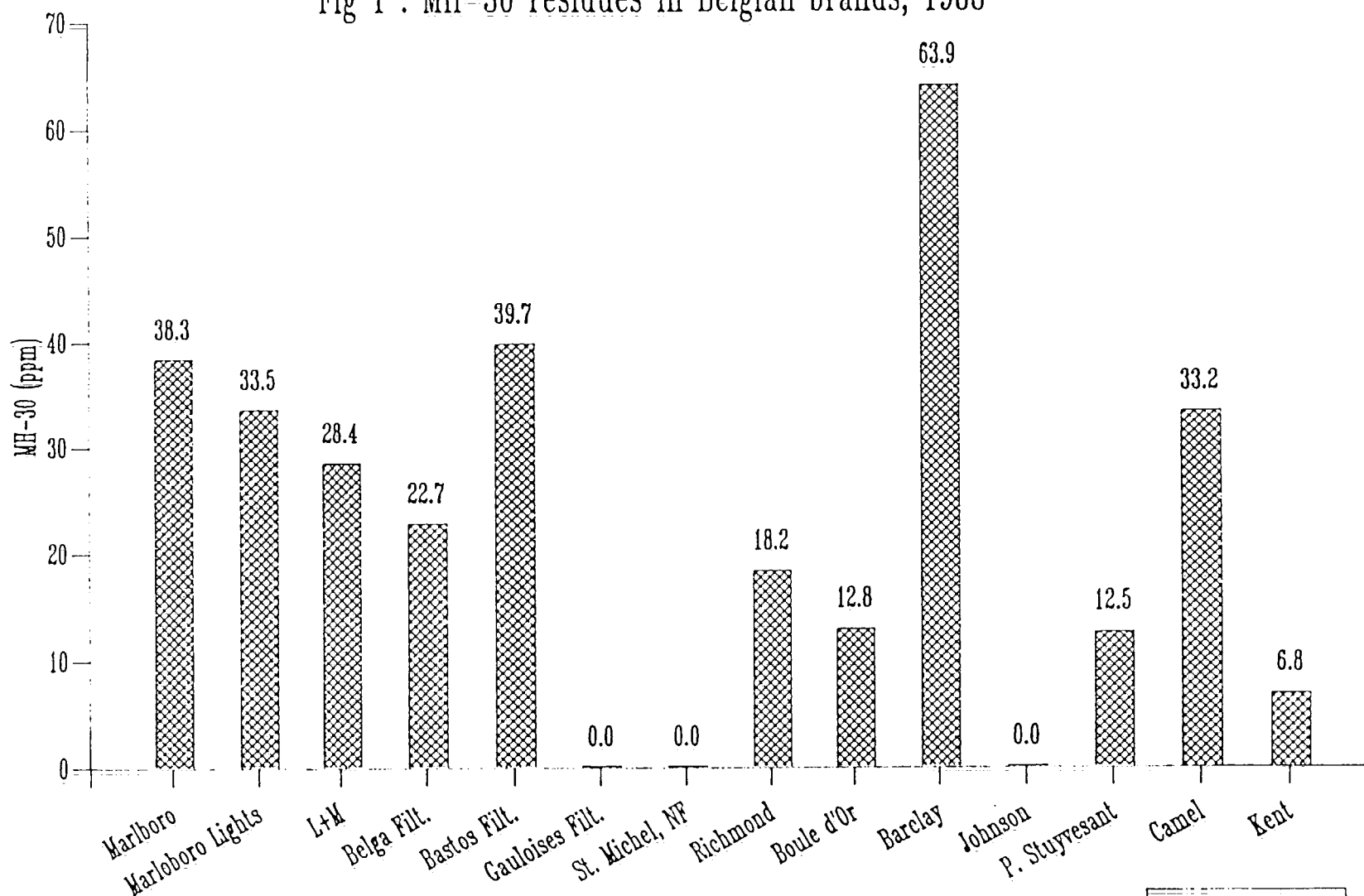
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Table 5 : MH-30 IN UK BRANDS, 1988

Brand	Company	MH-30 (ppm)
Marlboro	PM	40.3
Benson & Hedges	Gallaher	26.4
Berkeley Super Kings	Gallaher	11.4
Silk Cut KS	Gallaher	21.3
Regal KS	WD MO Will	10.2
JPS Super Kings LT	Imperial Tob.	10.2
John Player Special	Imperial Tob.	7.7
Lambert & Butler	Imperial Tob.	n.d.
Embassy Number 1	Imperial Tob.	14.2
Raffles	PM	33.2
Rothmans KS	RJR	8.8
Dorchester	RJR	14.2

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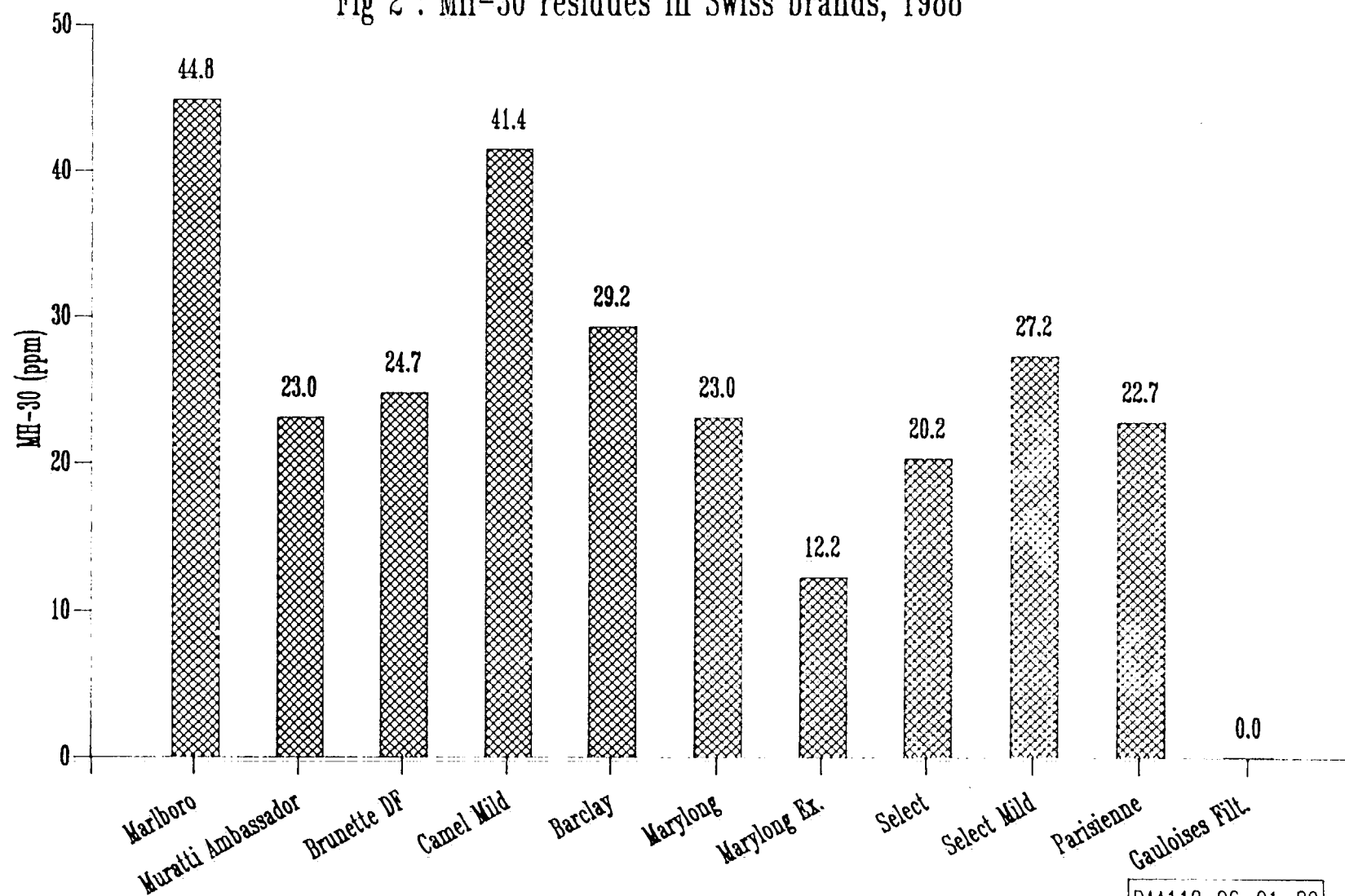
Fig 1 : MH-30 residues in Belgian brands, 1988



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Fig 2 : MH-30 residues in Swiss brands, 1988

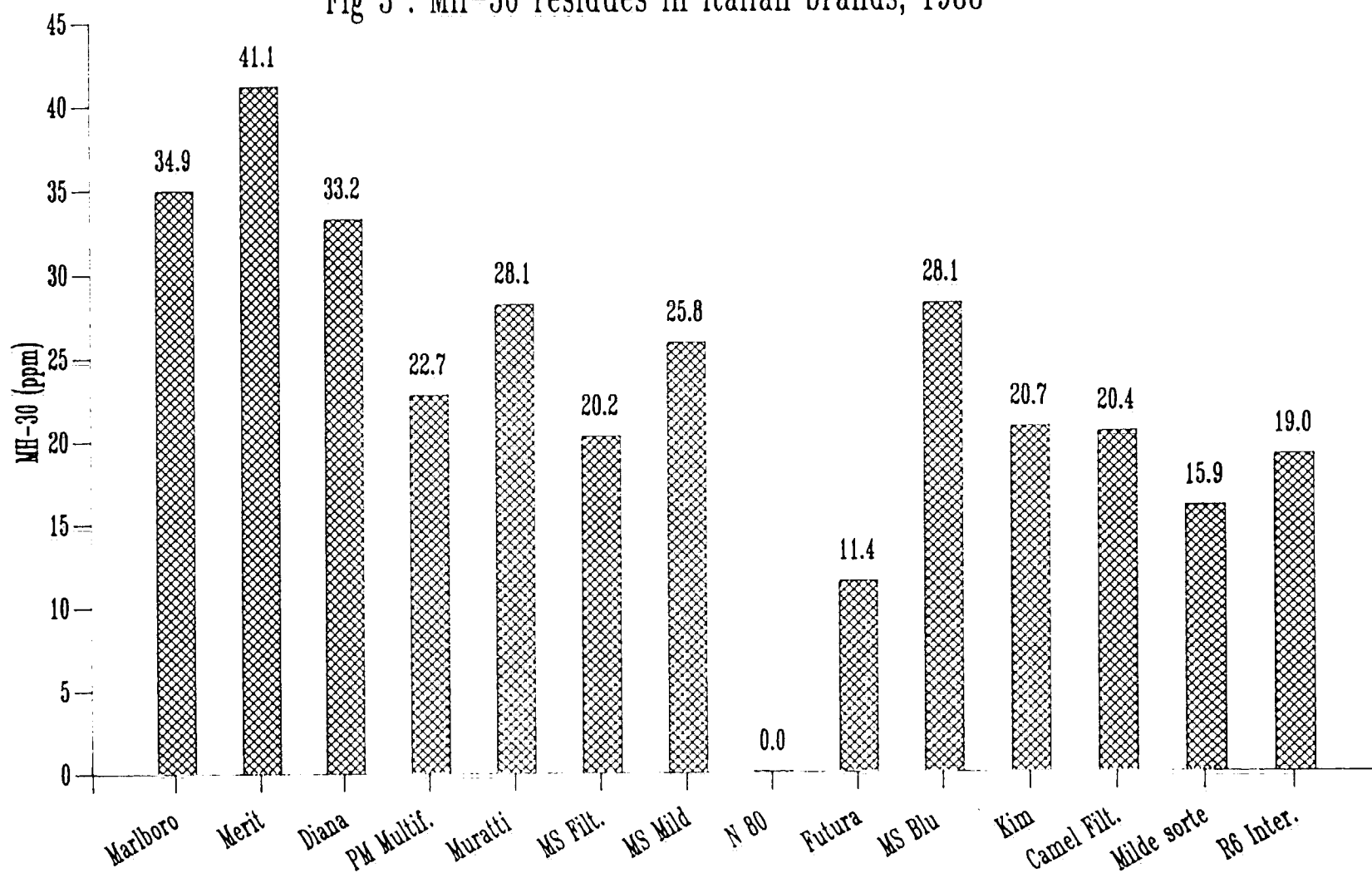


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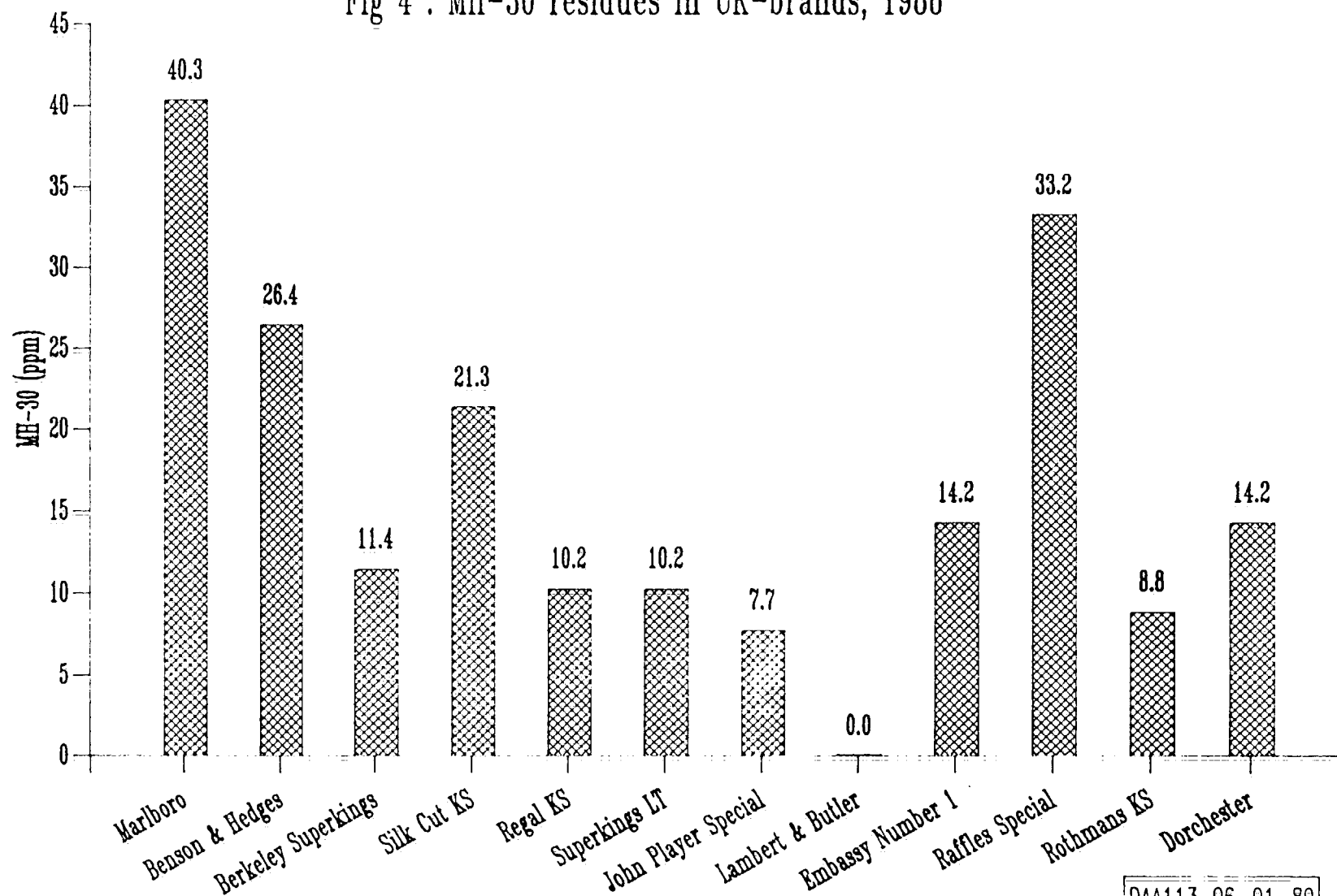
Fig 3 : MH-30 residues in Italian brands, 1988



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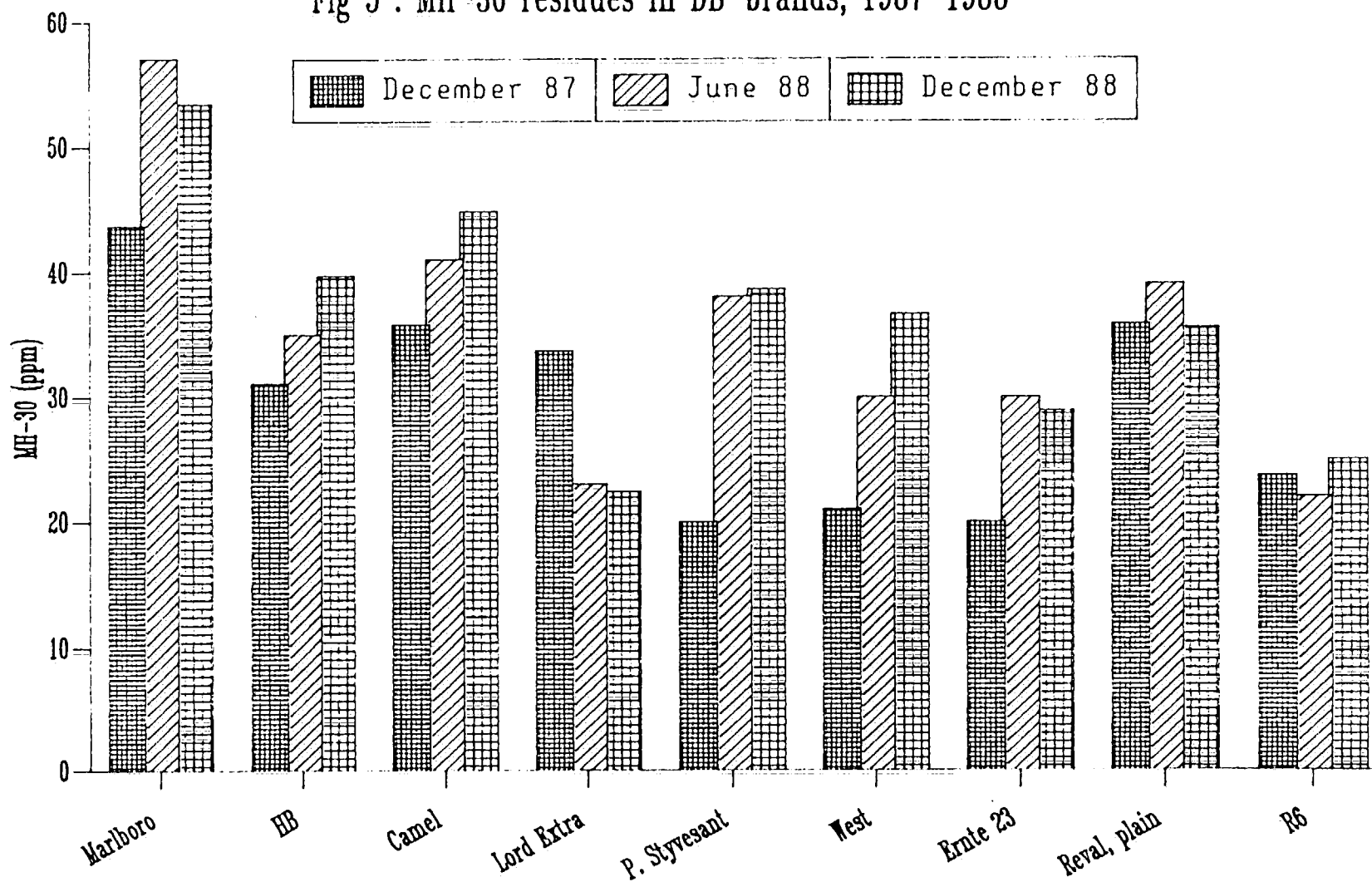
Fig 4 : MH-30 residues in UK-brands, 1988



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Fig 5 : MH-30 residues in DB-brands, 1987-1988



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